Practical – 7

Aim: String Matching

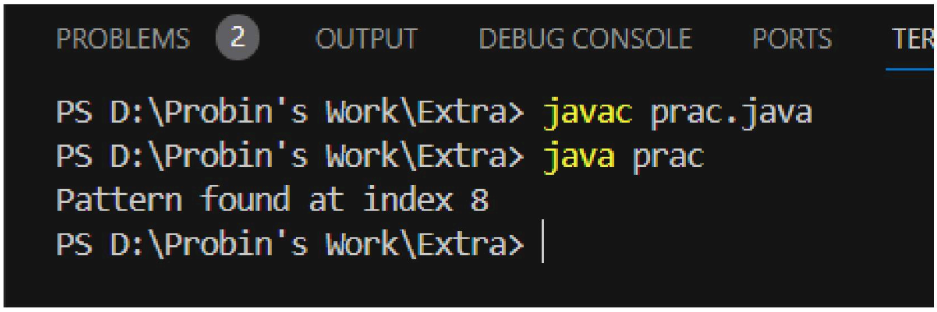
7.1)Two strings, a pattern 'P' and a text 'T' are given. The task is to implement program to determine if the pattern occurs in the text using Rabin Karp algorithm, and if it does, print all of its occurrences; else, print -1.

Program Code:

```
import java.util.ArrayList;
import java.util.List;
public class prac
{
    static int d = 256;
    static int q = 101;
    public static void search(String pattern, String text) {
      int M = pattern.length();
      int N = text.length();
      int i, j;
      int p = 0;
      int t = 0;
      int h = 1;

      for (i = 0; i < M - 1; i++)
         h = (h * d) % q;
      for (i = 0; i < M; i++) {
         p = (d * p + pattern.charAt(i)) % q;
         t = (d * t + text.charAt(i)) % q;
```

```
        }

        for (i = 0; i <= N - M; i++) {
            if (p == t) {
                for (j = 0; j < M; j++) {
                    if (text.charAt(i + j) != pattern.charAt(j))
                        break;
                }
                if (j == M)
                    System.out.println("Pattern found at index " + i);
            }

            if (i < N - M) {
                t = (d * (t - text.charAt(i) * h) + text.charAt(i + M)) % q;
                if (t < 0)
                    t = (t + q);
            }
        }
    }
    public static void main(String[] args) {
        String text = "DFAGBNHDAABAQWER";
        String pattern = "AABA";
        search(pattern, text);
    }
}
```

Output:



Conclusion: From this practical I learned about the string matching using Rabin-Karp Algorithm.

Staff Signature:

Grade:

Remarks by the Staff: